

## New Zealand GMO incident highlights lack of standardized tests

The lack of an internationally recognized system for sampling and testing seed shipments for the presence of genetically modified organisms (GMOs) has been highlighted by the possibility that a shipment of conventional sweet-corn seeds may have been contaminated with GM seeds, and subsequently planted and harvested in New Zealand, in violation of the country's moratorium on the release of GMOs into the environment.

In his book *Seeds of Distrust* (Craig Potton, Nelson, New Zealand, 2002), New Zealand activist Nicky Hager alleges that a shipment of seeds originating from Novartis in Idaho (now Syngenta; Basel, Switzerland) that arrived in the country in October 2000 had been contaminated with GM seeds, and that this had been known and subsequently covered up by the government. The accusations had threatened to derail New Zealand Prime Minister Helen Clark's campaign for re-election when the book was published in the run up to the general election on July 27.

The 5.6 ton shipment of seeds had been grown for export as a GM-free lot by Syngenta, and sold to various local importers, who planted it out for human consumption. However, one of the importers, Cedenco (Gisborne, New Zealand), arranged for the seed to be tested for the cauliflower mosaic virus (CaMV) 35S promoter, and the nopaline synthase (*nos*) 3' sequence, from the bacterium *Agrobacterium tumefaciens*, present in most GM corn. The tests were positive for the presence of the *nos* 3' sequence. Further testing gave mostly negative results for any GMOs, although a test by an Australian laboratory also detected the presence of the *nos* sequence. New Zealand's Environmental Risk Management Authority estimated that, based on the positive and negative results, if there had been contamination, it was at the level of less than 0.05%.

Government papers released just before the general election show an extraordinary level of uncertainty about how to deal with the issue. The controversy did, however, send officials privately scrambling to set up a protocol for testing imported seeds. When it adopted a voluntary interim protocol for testing sweet corn seed shipments in August 2001, New Zealand was one of the first countries in the world to do so. That has now been replaced by a



Greenpeace believes that the provision of unique primers for GM products by companies should be a prerequisite for any international trade in GM seeds.

permanent protocol that mandates testing for all sweetcorn and maize seeds, and this is expected to be extended to canola (oilseed rape) seeds from October 1, and to soybean seeds from January 1, 2003. Any testing must be done by laboratories accredited by the Ministry of Agriculture and Forestry (MAF), although routine testing will not be required from countries that are not involved in commercial GMO production, and that are thus granted "area freedom" status.

Although all the facts about what happened in New Zealand may never be known, subsequent investigation has shown that the positive GMO results may have been linked to soil contamination of some of the seed samples tested. The New Zealand public seemed to accept an assurance from Helen Clark that the contamination scare had been a "false alarm," returning the ruling Labour Party with sufficient support to form a minority coalition government. But the case has highlighted gaps in the regulatory system worldwide.

The International Seed Testing Association (Bassersdorf, Switzerland) has been calling for international uniformity in testing for GMOs for some time. In a position paper released last November it noted, "the identification and quantification of GMO content in conventional seed lots continues to be a challenge."

For its part, Syngenta agrees that standards for testing are required. In contrast to the New Zealand approach of zero tolerance, Peter Gerner, managing director of Syngenta Seeds' Oceania subsidiary, says any such standards must include the estab-

lishment of realistic thresholds, with the level of reliable detection considered to be 0.1%. "The [PCR] tests used to detect genetically modified seeds are advanced, and very sensitive. However, if there are only traces of GM seeds, at the level of detection, confusing results may occur. In addition, the detection sensitivity of the existing technology needs to be assessed in conjunction with any results. This supports the need for validated detection and sampling methods." Gerner says standards for testing would also need to include the certification of testing laboratories, already in progress in Europe and the United States (see p. 862).

There is as yet no mandate on companies that develop GM varieties to provide the technology necessary to test for the adventitious presence of GMOs. The International Seed Federation (Nyon, Switzerland) is pushing for companies to make the technology available, warning that non-access by seed companies could threaten their continued survival. And Greenpeace International campaigner Benny Haerlin (Berlin, Germany) says Greenpeace believes that the provision of unique primers for GM products by companies should be a prerequisite for any international trade in GM seeds. The European Union's Joint Research Centre is doing substantial scientific and standardizing work on this issue, and has set up a database on methods of GMO analysis.

The Cartagena Protocol on BioSafety, part of the Convention on Biological Diversity, which aims to regulate the exchange of GM materials between nations, may also hasten the development of testing protocols and facilities, although it has yet to attract the required number of signatures to come into force.

Meanwhile, shortly after the New Zealand general election, a second seed controversy hit. Initial tests showed that hybrid maize seeds grown and harvested in the country and intended for export contained GM material. The parent lines were imported from the United States from Garst (Slater, IA) and Monsanto (St Louis, MI) and had tested negative before being imported into New Zealand. The news prompted Green Party co-leader Jeanette Fitzsimons to call for New Zealand to stop importing sweetcorn or maize seeds from the United States, which she said made little effort to keep GM crops separate from conventional crops. "The Greens would like to see New Zealand ... sourcing these seeds from countries without GM crops, which can guarantee the integrity of their seed," she said.

*Cheryl Norrie, Wellington, New Zealand*